

AMENDMENTS TO THE CLAIMS

Please add new Claims 44-54, as shown below.

1. (Previously presented) A method of cleaning a chemical vapor deposition (CVD) reaction chamber with cleaning gas provided through a remote plasma discharge chamber, comprising:

dissociating cleaning gas within the remote plasma discharge chamber, wherein said dissociated cleaning gas is exposed to an anodized aluminum alloy wall of the remote plasma discharge chamber;

supplying activated species from the remote plasma discharge chamber to the reaction chamber through a piping;

opening a valve on the piping after conducting a CVD reaction and prior to supplying activated species, wherein opening a valve comprises withdrawing a valve body completely from a path to form an opening substantially as wide as internal surfaces of the piping; and

removing adhered deposits from CVD reactions on a wall of the reaction chamber.

2-10. (Cancelled).

11. (Previously presented) The method of Claim 1, further comprising closing the valve after removing the adhered deposits.

12-39. (Cancelled).

40. (Previously presented) The method of Claim 1, wherein removing adhered deposits comprises removing adhered silicon nitride deposits.

41. (Previously presented) The method of Claim 1, wherein the cleaning gas comprises fluorine-containing gas and the activated species comprises fluorine active species.

42. (Previously presented) The method of Claim 1, wherein the applied energy has a frequency between about 300 kHz and 500 kHz.

43. (Previously presented) The method of Claim 1, wherein supplying activated species comprises flowing NF_3 through the remote plasma discharge chamber at a rate between about 0.5 slm and 1.5 slm.

44. (New) The method of Claim 1, wherein supplying activated species comprises flowing the activated species solely along a straight-line section of the piping.

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45. (New) The method of Claim 1, wherein when cleaning gas flows from the remote plasma discharge chamber to the reaction chamber, no appreciable pressure loss arises in the piping and at the valve.

46. (New) The method of Claim 45, wherein dissociating cleaning gas comprises applying an energy in the remote plasma discharge chamber of less than 3000 W to the cleaning gas to form the activated species, wherein said activated species is a fluorine species; and wherein removing the adhered deposits from CVD reactions on a wall of the reaction chamber occurs at a rate of greater than or equal to about 2.0 microns/minute.

47. (New) The method of claim 46, wherein removing adhered deposits on the wall of the reaction chamber comprises removing adhered silicon nitride deposits.

48. (New) The method of Claim 46, wherein removing adhered deposits on the wall of the reaction chamber comprises removing adhered silicon oxide deposits.

49. (New) The method of Claim 46, wherein removing adhered deposits on the wall of the reaction chamber comprises removing adhered tungsten deposits.

50. (New) The method of Claim 46, the cleaning gas comprises carbon tetrafluoride (CF₄).

51. (New) The method of claim 46, the cleaning gas comprises nitrogen trifluoride (NF₃).

52. (New) The method of claim 46, wherein dissociating cleaning gas comprises applying an energy of between about 2,500 W and 3,000 W.

53. (New) The method of claim 52, wherein the applied energy has a frequency between about 300 kHz and 500 kHz.

54. (New) A method of cleaning a chemical vapor deposition (CVD) reaction chamber with cleaning gas provided through a remote plasma discharge chamber, comprising:

dissociating cleaning gas within the remote plasma discharge chamber, wherein said dissociated cleaning gas is exposed to an anodized aluminum alloy wall of the remote plasma discharge chamber;

supplying activated species from the remote plasma discharge chamber to the reaction chamber through a piping, wherein said piping is a straight-line structure

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between the remote plasma discharge chamber and the chemical vapor deposition reaction chamber;

opening a valve on the piping after conducting a CVD reaction and prior to supplying activated species, wherein opening a valve comprises withdrawing a valve body completely from a path to form an opening substantially as wide as internal surfaces of the piping, wherein when cleaning gas flows from the remote plasma discharge chamber to the reaction chamber, no appreciable pressure loss arises in the piping and at the valve; and

removing adhered deposits from CVD reactions on a wall of the reaction chamber.